Residential Demand Side Energy Management

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ENERGY STAR® Program

Scope : Bringing advanced technologies to provide ever-increasing energy efficiency for stand-alone appliances

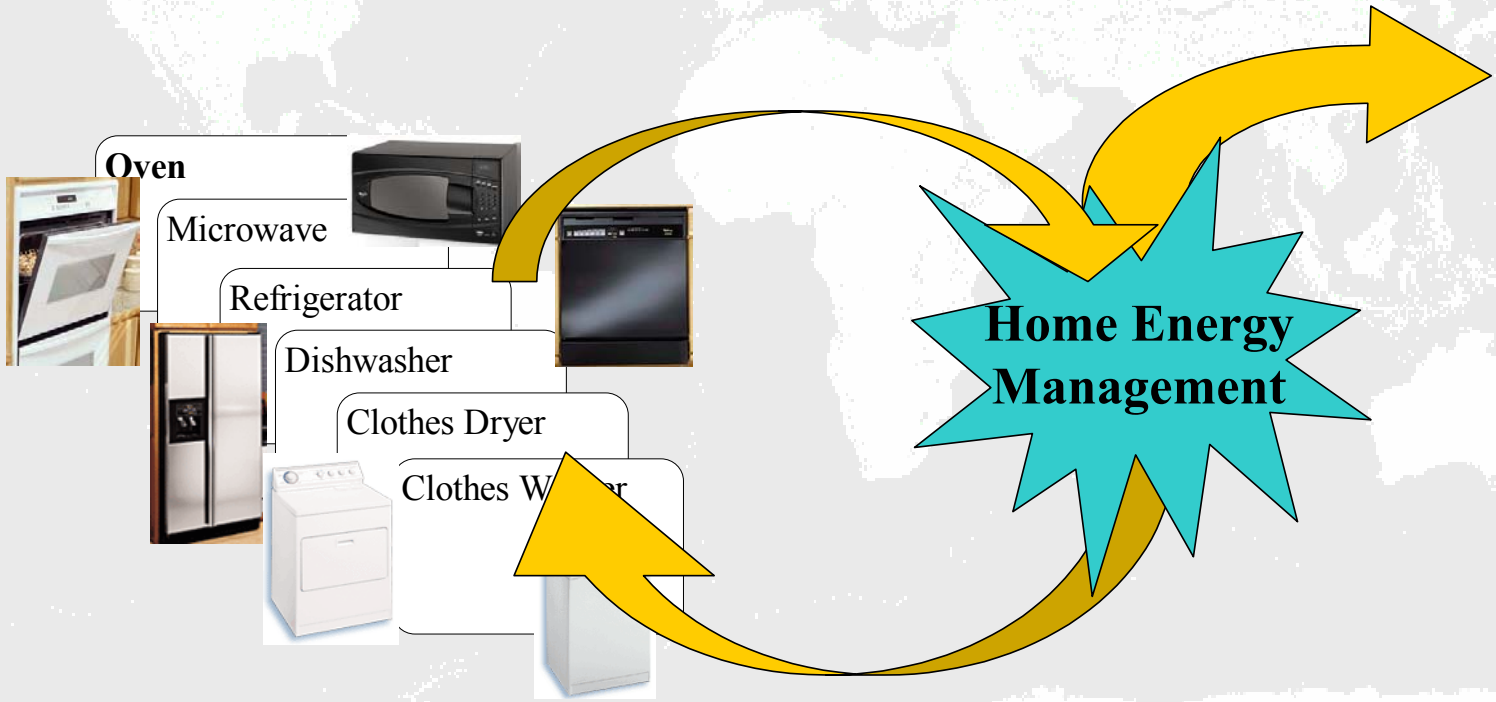
In 2002 :

- 60 % of our refrigerators are ENERGY STAR
- 65 % of our dishwashers are ENERGY STAR
- 83 % of our dehumidifiers are ENERGY STAR
- 17 % of our room conditioner are ENERGY STAR

In 2003 will increase the penetration of ENERGY STAR appliances

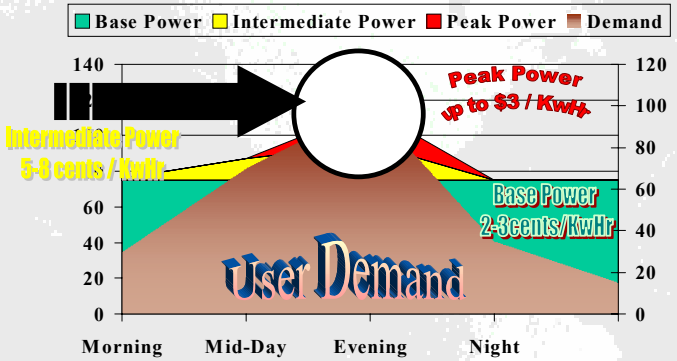
Home network and Internet : the enablers

Home network and Internet allow the integration and the management of the overall power consumption. In particular, we can curtail energy on demand, we can share energy among devices, we can get data and we can monitor the energy consumption.

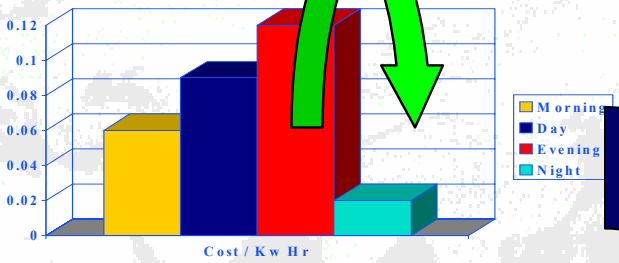


Time Of Use : allows the power utilities and the customer to save money

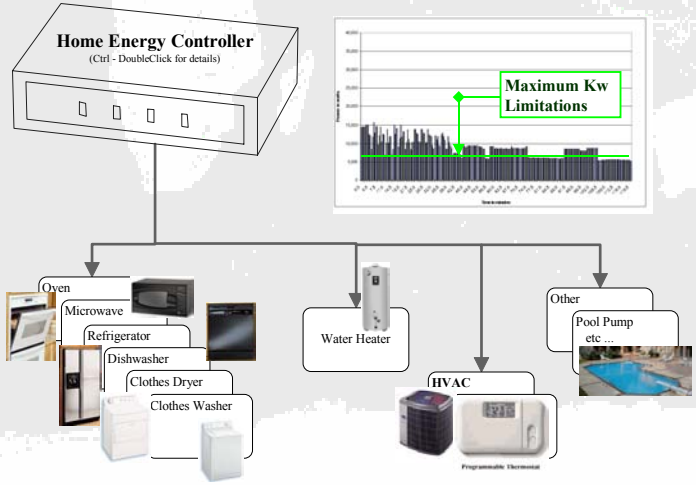
Demand, supply, & cost efficiencies are motivating...



...technical advances in Energy Mgmt ...



... via Total Home Energy Management



For each home, on average , we can shift up to 850 Watts to off peak time .

Home appliances will contribute 30% of the shift

Whirlpool power management

Demo

- load monitoring
  - energy saving and incentive options
  - actual power consumption
  - record and confront of power consumption
  - suggestions
- load management according to :
  - personal energy preferences
  - data from energy provider
  - curtailment signal

Barriers for the DSM concept

Infrastructure issues
- TOU penetration and differentiation
- Lack of infrastructures for communication, products, billing and metering
- Curtailment no transparent to consumer
- No product interoperability

System issues
- Reducing residential demand runs counter to utility growth desires
- Need to be focused on total home system rather than single device

Business issues
- Whose money is it?
- High development cost
- Maintenance of integrated infrastructure
- Education and promotion
- Regional variables (TOU, clime, habits, incentives, etc)